



# A BIBLIOMETRIC ANALYSIS ON THE LEVEL OF SENTIMENTS ON CRYPTOCURRENCY

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## ABSTRACT

Cryptocurrency has captured significant attention from the investors, policymakers, entrepreneurs and a financial market. The presence of crypto currency and their investment pattern needs to be study thoroughly as it is ultimately connected with the behavior of investors. The main purpose of this study is to provide a bibliometric analysis of scholarly work on cryptocurrency. This study is applying the tools such as a VOSviewer and R programming bibliometric analysis for specific time zone of 2018 to 2024. The analysis has been done on 1515 academic and industry research papers from various reputed journals like Scopus and web of science for finding the key areas regarding what type of study has been done so far in area of cryptocurrency and blockchain. By the VOSviewer and Bibliometric tool this study visualizes keywords co-occurrence network, citations, key trends and major publication journals. The review highlights that the transformative potential of cryptocurrency in traditional financial system while addressing concerns relating to volatility, security mentioned by various authors in various countries. By identifying the gap in existing research and suggesting direction for the future inquiry, this study leads to more clarity regarding the study done so far in the cryptocurrency and other digital currency by various authors in recent time period. Through an analysis of research, this work helps in both overall and in-depth views over current state of research in crypto currency. This paper tires to contribute to a deeper understanding of the nature of cryptocurrency and its roles in finance.

**KEYWORDS:** Cryptocurrency, Bibliometric Analysis, Blockchain, VOS viewer, R Programming

## INTRODUCTION

In the era of digitalization of currency, fin-tech and artificial intelligence huge interest been started up on the study of the cryptocurrencies. Academician, researcher as well as businessmen all are alike in growing the curiosity in cryptocurrency particularly after 2018 when many amendments and price hike shown in Bitcoin (Narayanaswamy, 2018). Cryptocurrency is a form of payment that can be exchanged online for goods and services. Many companies have issued their own currencies, often called tokens, and these can be traded specifically for the good or service that the company provides. Bitcoin and Ethereum, for example, have shown to be quite robust. Bitcoin remains the world's largest cryptocurrency, and blockchain technology continues to disrupt many industries as its benefits are seemingly bringing great impact. Even in the research paper cryptocurrencies in modern finance: in this research paper, the focus on cryptocurrencies in the finance and banking sectors is gaining momentum. In this paper, they investigate the role of cryptocurrencies in modern finance. A study applies a narrative literature review method to synthesize prior research and draw insights into the opportunities and challenges of leveraging cryptocurrencies (Rejeb, 2021). Likewise for same to provide deep dive in the literatures available and what is main focus of other authors in the cryptocurrency this study providing literature review on cryptocurrency.

As Cryptocurrency is a digital currency which has not been perceived as legal means of transaction for day to day activities

till now in majority of the countries in the world it create more impact on the investors. There are lack of study done on focusing what is been done so far in study the cryptocurrency. Cryptocurrency adoption level has increased, and the market has grown dramatically. There has not been enough literature investigating the adoption and acceptance of the cryptocurrency by users. The aim of that paper was to fill the gap in the current literature by investigating the current cryptocurrency adoption level, adoption-influencing factors, providing an in-depth analysis of these factors and discussing some pitfalls surrounding the cryptocurrency adoption (S. Alzahrani and T. U. Daim, 2019). Along with the development of modernization and globalization which has now entered the industrial era 4.0 revolution there is a blockchain based technology, Cryptocurrency (Amsyar, 2020). Consequently, providing a detail literature analysis or bibliometric analysis is crucial.

In all various discipline, a thorough literature review is always needed. The methods available are like a) Systematic Review (Aromataris & Pearson, 2014) b) bibliometric review (Kumar, 2024) c) retrospective review (Corey W. Iqbal M.D., 2005) is often available. There are specific purposes of all different methods of making review technique. As systematic literature review will involve an in-depth analysis of conceptual framework of the papers which are being reviewed, while bibliometric analysis is applied to understand the pattern that involved in particular area of study. It provides the features, thematic maps, recent trend bases analysis. However, the retrospective analysis provides the coverage after the treatment

will be given.

A well in depth bibliometric analysis of relevant scopus articles, this research study attempts to fill the gap in the literature. Bibliometric analysis provided the collaboration pattern between authors, organizations, or countries and research themes. Therefore the bibliometric analysis of cryptocurrency consists of identifying and analyzing the papers, research articles, and other scholarly publications that indicates the databases of cryptocurrency. This paper makes an effort to provide thorough analysis of said subject in order to help researcher, academicians as well as many other stakeholders. This study takes a comprehensive approach to indicate the attitude towards cryptocurrency by various authors.

## MATERIALS AND METHODS

This study focuses on the literature review which is done by the VOS software and R Programming Bibliometric analysis using Biblioshiny for specific time zone of 2018 to Sept-2024. This analysis has been done on 1515 academic and industry research papers from various reputed journals like Scopus, web of science etc. for finding the key focus regarding what type of study has been done so far in area of crypto currency and blockchain. Therefore, by providing as a powerful tool to examine geographic distribution, citation, co-citation and word frequency bibliometric analysis provides researchers a chance to go further deep into specific topic of study.

To eliminate the duplication or omission of any area keywords used were “Cryptocurrency”, “Blockchain” and “Digital Currency”. The study only looked for these terms in the articles, its abstracts, title as well as key words.

## RESULTS & DISCUSSION

With the help of VoS viewer and Biblioshiny analysis were done on 1515 research papers of Scopus for timeline between 2018 and 2024. The analysis was based on various themes such as major Authors based on citation, Number of articles published each year, most recent global citation of authors, Major countries contributing into research based on authors country as well as based on the citation used by other authors etc. These themes leads to the in depth analysis of literature on dynamic viewpoints.

### Major Authors:

The top authors, according to total citation are shown in the following table which shows the major citation based on the top authors. As per the table we can able to find there are two authors whose work has been mentioned the most are Corbet S. and Lucey, Brian there are 16 and 8 articles peer-reviews papers published in various journals. They examined a) How variations in the macroeconomics news that affect Bitcoin Returns as well as study on cryptocurrency (S., B., A., & L., 2019) b) the financial market volatility spillover effect (S., J.W., S., & K., 2023).

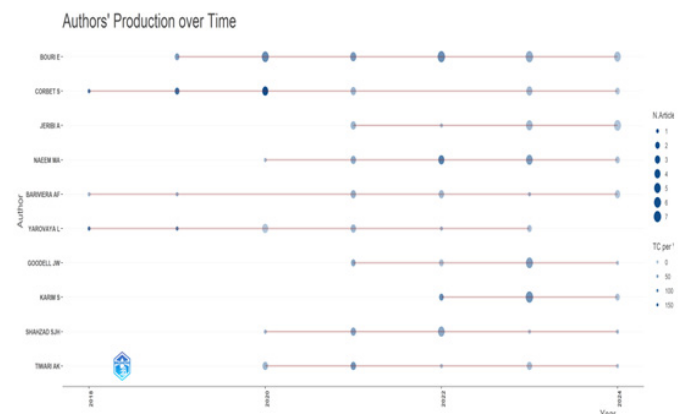
This Table and figure shows that area of study is used by various author as well as they valued the work of other authors.

| Author                  | Documents | citations |
|-------------------------|-----------|-----------|
| Corbet, shaen           | 16        | 2805      |
| Lucey, brian            | 8         | 2547      |
| Yarovaya, larisa        | 12        | 1675      |
| Bouri, elie             | 31        | 1467      |
| Larkin, charles         | 4         | 1441      |
| Gilad, yossi            | 2         | 1035      |
| Zeldovich, nickolai     | 2         | 1035      |
| Urquhart, andrew        | 9         | 914       |
| Narayanan, arvind       | 4         | 842       |
| Bonneau, joseph         | 2         | 813       |
| Clark, jeremy           | 2         | 798       |
| Miller, andrew          | 3         | 775       |
| Naeem, muhammad abubakr | 15        | 676       |
| Roubaud, david          | 7         | 669       |

**Table 1: Major Authors as per maximum Total Citations**

Through citation and co-citation analysis, the objective is to uncover the foundational works that have shaped the discipline and the authors who have had the greatest impact on advancing knowledge in this field. Focusing the same from the year 2018 to 2024 following figure shows the major author based on the maximum total citation where it included the production over the time each year as well as citation ranging from 0 to 150 or more.

The following analysis shows that from 2018 to 2024 every year's numbers of articles are increases and the majority numbers of citations were done in the year 2022.



**Figure 1: Major author based on the Maximum total citation**

### Number of Articles published each year

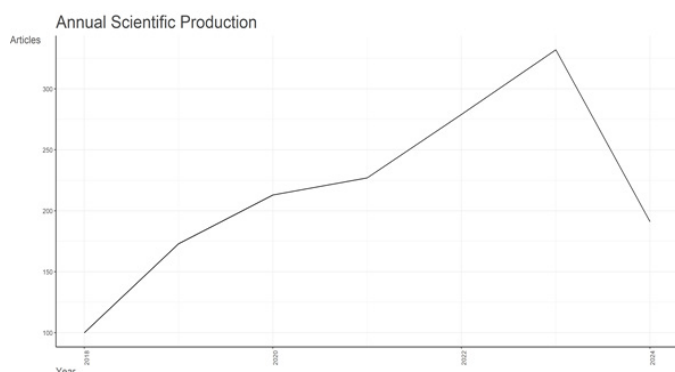
Following table presents the publication trends, showing how the yearly number of scientific articles in the cryptocurrency sector has developed in relation to the attitudes. Overall study appears to be trending upward from 2018 to 2023, especially because of sharp increase in the bitcoin price.

Out of the total 1515 articles around 23% were published in the year 2023, it is clear from the pattern that scholars are becoming

more interested till 2023 while in 2024 there are less research were done in the field of study. There can be various reasons for the downfall of research in the field study.

| Year | Articles |
|------|----------|
| 2018 | 100      |
| 2019 | 173      |
| 2020 | 213      |
| 2021 | 227      |
| 2022 | 279      |
| 2023 | 332      |
| 2024 | 191      |

**Table 2: Number of Articles published each year**



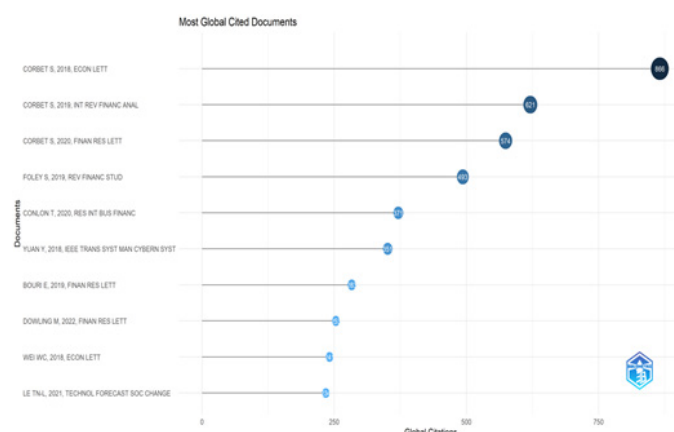
**Figure 2: Annual Scientific Production**

#### Most global citation by authors:

In Accordance with most citation of overall study the global citation also shows same pattern. At the global recognition there are flowing authors whose research work was highly appreciated as well as citation made by various other authors. As per the following table it can be find that author corbet has done study in the year 2018 was the most citation at global level while other authors such as foley and conlont also provided the good areas for the other researcher. The work of the author which was most citation globally was under the field of computer science, Economics and behavioral too.

| Paper   | Total Citations | TC per Year |
|---|-----------------|-------------|
| Corbet S, 2018, Econ Lett                     | 866             | 123.71      |
| Corbet S, 2019, Int Rev Financ Anal           | 621             | 103.50      |
| Corbet S, 2020, Finan Res Lett                | 574             | 114.80      |
| Foley S, 2019, Rev Financ Stud                | 493             | 82.17       |
| Conlon T, 2020, Res Int Bus Financ            | 371             | 74.20       |
| Yuan Y, 2018, Ieee Trans Syst Man Cybern Syst | 351             | 50.14       |
| Bouri E, 2019, Finan Res Lett                 | 283             | 47.17       |
| Dowling M, 2022, Finan Res Lett               | 253             | 84.33       |
| Wei Wc, 2018, Econ Lett                       | 241             | 34.43       |
| Le Tn-L, 2021, Technol Forecast Soc Change    | 234             | 58.50       |

**Table 3: Most Global Citations**



**Figure 3: Most Global Cited Documents**

#### Major Countries:

##### Authors Country:

The following table shows that the various authors are coming from which country. The table shows that majority of articles like around 96 were come from the Authors of China followed by USA and United Kingdom. Where, the authors from India were ranked as 4th in the list of articles. The growth of importance in the area of study was shown in the scholars for almost majority of the countries.

**Table 4: Major Author's Country**

| Country        | Articles |
|----------------|----------|
| CHINA          | 96       |
| USA            | 83       |
| UNITED KINGDOM | 75       |
| INDIA          | 70       |
| SPAIN          | 55       |
| AUSTRALIA      | 35       |
| ITALY          | 33       |
| FRANCE         | 30       |
| BRAZIL         | 29       |
| GERMANY        | 29       |
| TURKEY         | 29       |
| GREECE         | 28       |
| MALAYSIA       | 26       |

Following figures shows the same authors who comes from different countries.

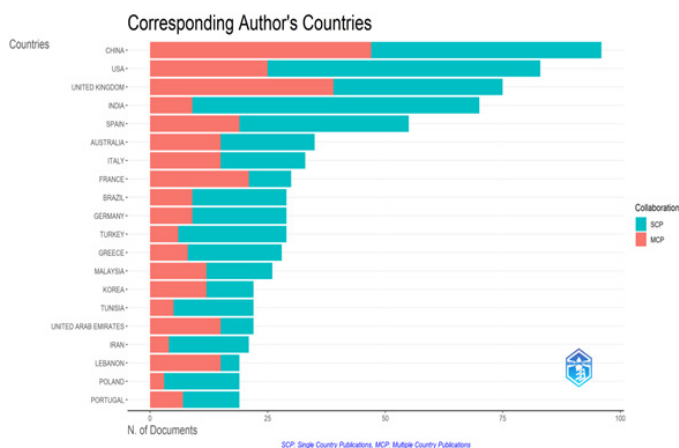


Figure 4: Author's Country

### Major Publication Countries:

Ireland has published the maximum number of articles with around 2849 citations, followed by china with 2367 total citations. Ireland produced the most publications. Polish bank association, Dublin City University and trinity college Dublin are the three institutions that have been able to create maximum impact by citation. Following table and figure shows the same analytics using bibliomatrix.

| Country        | TC   |
|----------------|------|
| IRELAND        | 2849 |
| CHINA          | 2367 |
| UNITED KINGDOM | 1537 |
| USA            | 1465 |
| SPAIN          | 1308 |
| GERMANY        | 918  |
| AUSTRALIA      | 881  |
| LEBANON        | 865  |
| FRANCE         | 777  |
| SWEDEN         | 681  |

Table 5: Major Countries that are publishing in the field

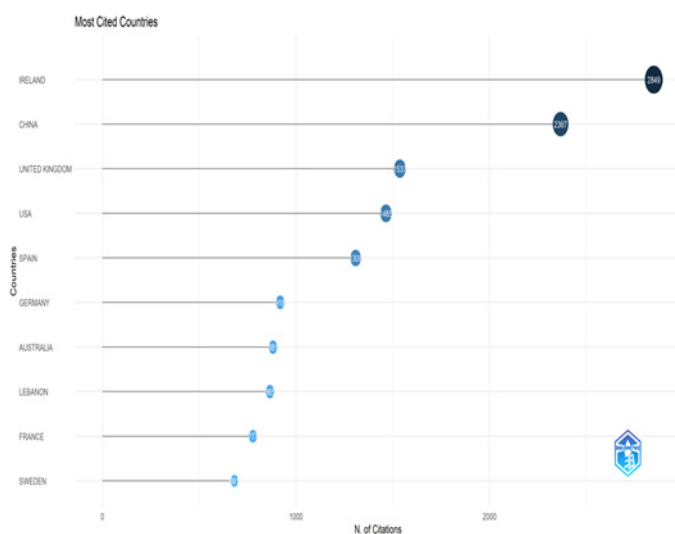


Figure 5: Major Countries that are publishing in the field

### Thematic Representation:

#### Major Keywords:

To study about the highly used keyword for the study under my topic. For the said analysis VOS viewer has been used. After reviewing all the research papers it was found that the "Cryptocurrency" or "cryptocurrencies" word which authors commonly use for the study while there are also other words such as "Bitcoin", "Blockchain", "electronic money" as crypto got hype during 2018 to 2021 there are around 92 papers which was used "covid-19" as keyword.

Following table shows the highest 15 keywords used in the area of said subject.

| No. | Keyword                    | Occurrences |
|-----|----------------------------|-------------|
| 1   | Cryptocurrency             | 550         |
| 2   | Cryptocurrencies           | 520         |
| 3   | Bitcoin                    | 443         |
| 4   | Blockchain                 | 246         |
| 5   | Electronic Money           | 177         |
| 6   | Covid-19                   | 92          |
| 7   | Investments                | 86          |
| 8   | Ethereum                   | 84          |
| 9   | Cryptography               | 43          |
| 10  | Currency Market            | 25          |
| 11  | Financial System           | 24          |
| 12  | Market Capitalization      | 23          |
| 13  | Financial Market           | 22          |
| 14  | Digital Currency           | 21          |
| 15  | Social Networking (Online) | 20          |

Table 6: Major Occurred Keywords

Following is the result from VOS Viewer showing the most Occurrences of keyword or major keyword that used by researcher to study the same. The thick line shows how deep the use of the said subject line. The figure shows the most occurrence of keyword based on the analysis tool of VOS viewer on the articles that published on Scopus. So far the cryptocurrency, Bitcoin are the major words which applied under the study but there are others keywords too like Ethereum, Covid-19, digital currency, etc. Thick line and size of dot shows the level of keywords used by different articles. The larger the dot, the more frequently that keyword appears. Following figure shows the same.



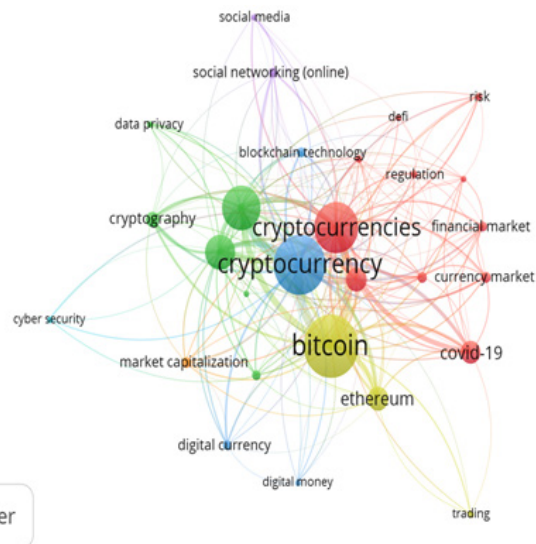


Figure 6: Major Occurred Keywords

### Co-citation network of all the journals:

There is cluster based study done on the number of journals in which publication has been done for more than 7 as bench mark for the analysis as it shows that journal is focusing main on the said subject too. Co-citation network of all different journals represent the reputed and highly published articles.

There are total 5 cluster generated in the data where, Cluster 1 major focused on American economic review, Cluster 2 covering Focus on economic journal, Cluster 3 covers Finance research, Cluster 4 includes the international journal on applied statistics while Cluster 5 covers financial innovations. Following is result network which shows the co-citation of all the journals of the reviewed data.

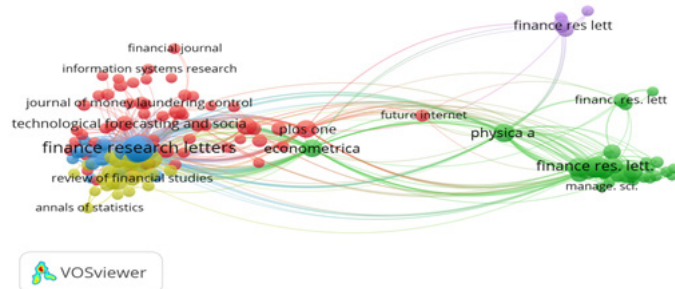


Figure 7: Co-citation Network of Journals

There is another analysis done on the same criteria based on the biblioshiny for the major publication journal which shows most relevant journals for the study of crypto currency. There are total 1515 research papers which were published by reputed journals. The finding shows that area of study and journals publishing the work are vary to different disciplines like Finance, Account, Business, Economics, and Applied Science etc. From the analysis the financial research letter is at the top in making research over the cryptocurrency followed by the international research on business and finance and computer science journals. Following figure shows the most relevant

journal for the study publications.

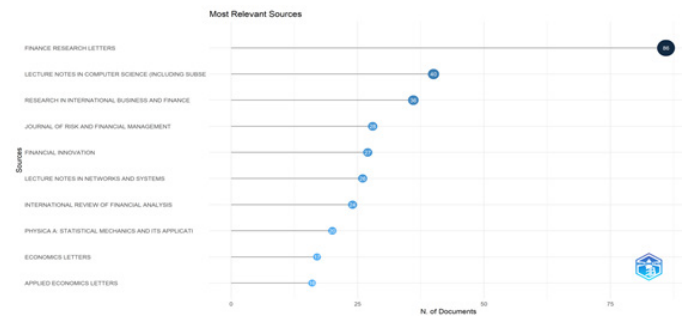


Figure 8: Most relevant journals

### Recent trend in article:

Following table shows the most recent trend that follows in the area of cryptocurrency. The articles with having the term investments, blockchain are the most recent in current era. While based on highly utilized are the cryptocurrency, Bitcoin and electronic money. So this will help for future researcher to know about the trends that goes in the field of study.

| Year | Term                  | Frequency |
|------|-----------------------|-----------|
| 2023 | Investments           | 86        |
| 2023 | block-chain           | 79        |
| 2023 | currency market       | 25        |
| 2022 | financial markets     | 46        |
| 2022 | Forecasting           | 70        |
| 2022 | Currency              | 47        |
| 2021 | Bitcoin               | 169       |
| 2021 | Blockchain            | 138       |
| 2021 | Cryptocurrency        | 104       |
| 2020 | Electronic Money      | 153       |
| 2020 | Market Capitalization | 20        |
| 2020 | Peer to Peer networks | 17        |

Table 7: Most recent trends in the field of study

### CONCLUSIONS

The result and overall study offers the thematically framework. This proved as a powerful lens for analyzing the current literature. Thematic research is a qualitative data analysis which is used to identifying, analyzing and interpreting the pattern of the meaning each criteria of study. Within the core area of sentiment, the research delves into the key discussion and diverse perspectives presented by various authors of analyzed papers. This comprehensive study provides a detailed summary of the current state of understanding in cryptocurrency. It shows light on the various approaches, challenges and potential solution that varieties of researcher has proposed. Moreover, by detail analysis within each theme, the research foster a deeper understanding of the multifaceted nature of cryptocurrency and diverse perspectives of the field.

This analysis reveals the key areas such as the current collaboration between countries and organization and authors. Similarly trends are observed in the citation network. It shows the most involved countries are being USA, UK, Ireland,

Canada, India and China. This geographical spread reflects potential factor influencing research activity in cryptocurrency sentiments. Therefore, the countries with high rate of cryptocurrency adoption among their citizens or with well-developed financial markets would rapidly increase research to address practical challenges. By analyzing patterns of citation, keyword usage, and research funding, the study aims to pinpoint under-researched areas that offer potential for future innovation and discovery.

The finding offers the insight into the themes and even it shows there is any collaborations between authors is not very developed which might leads to the innovation and public recognition of the subject. This study tried to increase the researcher's interest in the field of study. The limitation of this study is that it does not cover all the relevant publication other than scopus and also the publication beyond 2018 to Sept-2024.

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